

PATENT COOPERATION TREATY

PCT

REC'D 28 SEP 2004

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

PCT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 35202WOP00	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International Application No. PCT/AU2003/000745	International Filing Date (day/month/year) 13 June 2003	Priority Date (day/month/year) 13 June 2002
International Patent Classification (IPC) or national classification and IPC Int. Cl. ⁷ G01G 21/10		
Applicant CLOSE THE LOOP TECHNOLOGIES PTY LTD et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheet(s).

3. This report contains indications relating to the following items:

- | | | |
|------|-------------------------------------|---|
| I | <input checked="" type="checkbox"/> | Basis of the report |
| II | <input type="checkbox"/> | Priority |
| III | <input type="checkbox"/> | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| IV | <input type="checkbox"/> | Lack of unity of invention |
| V | <input checked="" type="checkbox"/> | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| VI | <input type="checkbox"/> | Certain documents cited |
| VII | <input type="checkbox"/> | Certain defects in the international application |
| VIII | <input type="checkbox"/> | Certain observations on the international application |

Date of submission of the demand 10 November 2003	Date of completion of the report 17 September 2004
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer GREG POWELL Telephone No. (02) 6283 2308

I. Basis of the report**1. With regard to the elements of the international application:***

- ☒ the international application as originally filed.
- ☐ the description, pages , as originally filed,
pages , filed with the demand,
pages , received on with the letter of
- ☐ the claims, pages , as originally filed,
pages , as amended (together with any statement) under Article 19,
pages , filed with the demand,
pages , received on with the letter of
- ☐ the drawings, pages , as originally filed,
pages , filed with the demand,
pages , received on with the letter of
- ☐ the sequence listing part of the description:
pages , as originally filed
pages , filed with the demand
pages , received on with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig.

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims 2, 3, 5-7, 13-15, 17, 19, 21-23, 28-29, 31	YES
	Claims 1, 4, 8-12, 16, 18, 20, 24-27, 30	NO
Inventive step (IS)	Claims 3, 19	YES
	Claims 1, 2, 4-18, 20-31	NO
Industrial applicability (IA)	Claims 1-31	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)

The following documents identified in the International Search Report have been considered for the purposes of this report:

D1: US 6311904 B1
D2: JP 2002-179125 A
D3: JP 2001-205245 A

NOVELTY (N) Claims 1, 4, 8-12, 16, 18, 20, 24-27, 30

Claims 1, 18: Document D1 discloses an apparatus and method of extracting toner from toner cartridges including:

- breaking up toner cartridges into pieces to release toner from within the cartridges (grinder 5 releases powder by grinding toner cartridges 3 with grinding drums 13, column 3 lines 53-60, fig 1);
- passing the cartridge pieces over a sifting barrier so that only particles under a predetermined size pass through the barrier and agitating the pieces to mobilise the toner (the fragments 21 of the ground cartridges drop onto an inclined vibrating grid 23 allowing the ground fragments 21 to be removed and the toner, which passes through the grid, to be recovered, column 3 line 65-column 4 line 3, fig 1);
- extracting air from adjacent the pieces to remove airborne particles (toner is recovered by means of a suction system 25, column 4 line 2, fig 1);
- removing toner from the air extracted from adjacent the pieces (it is inherent that toner is removed from the extracted air, since the apparatus is designed for toner recovery).

Therefore, claims 1 and 18 are not novel in light of D1.

Claims 4, 8-12, 16, 20, 24-27, 30: Document D1 also discloses the features of these claims. For example, the pieces are agitated which lifts and drops the pieces on the vibrating grid 23 (column 3 line 67), air is extracted by means of a suction system 25 that is placed beneath the grid 23 which is within enclosure 7 (column 4 lines 1-3, fig 1), the grid is inclined (column 3 line 67, fig 1), and the grinding drums 13 shred the cartridges 3 (column 3 line 59). Therefore, claims 4, 8 to 12, 16, 20, 24 to 27 and 30 are not novel in light of D1.

(continued)

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation (1) of Box V**INVENTIVE STEP (IS) Claims 1, 2, 4-18, 20-31***D1: US 6311904 B1*

Claims 1, 2, 4-18, 20-31: As above with respect to claims 1, 4, 8-12, 16, 18, 20, 24-27 and 30. Furthermore, it is considered that the features added by claims 2, 5 to 7, 13 to 15, 17, 21 to 23, 28, 29 and 31 relate to features which are common general knowledge in the art (eg recovering the toner for recycling, filtering using a classification column, or magnetic sorting of ferrous and non-metals/plastics) or relate to structures that are merely matters of design choice when the general technical knowledge about the state of the art is used (eg using a trommel to agitate the pieces, or extracting air from the trommel or shredder). Therefore, claims 1, 2, 4 to 18 and 20 to 31 lack an inventive step in light of D1.

D2: JP 2002-179125 A

Claims 1, 2, 4-18, 20-31: Document D2 discloses a device and process for treating used toner cartridges including:

- breaking up toner cartridges into pieces to release toner from within the cartridges (used toner cartridges 1 are supplied to shredder 4, paragraph [0021], fig 1);
- passing the cartridge pieces over a sifting barrier so that only particles under a predetermined size pass through the barrier (the crushed objects are passed to sieve equipment 21 by inclination conveyor 20, paragraph [0026], wherein different sized particles are separated by different sized sieve eyes, paragraph [0027], fig 1);
- extracting air from adjacent the pieces to remove airborne particles (air is extracted from the sieve equipment 21 by ventilating fan 32 using filters 27 and 29, paragraph [0028], fig 1);
- removing toner from the air extracted from adjacent the pieces (it is inherent that toner is collected from the extracted air, as well as from container 24).

The citation differs from the present invention because it does not include agitating the pieces to mobilise the toner. However, it is considered that this difference constitutes no more than a mere workshop improvement. It is an arrangement that any competent worker in the art would be expected to make directly and without difficulty and by routine steps alone. Therefore, claims 1 and 18 lack an inventive step in light of D2. Furthermore, D2 also discloses the features of claims 11, 12 and 27 (shredder 4, fig 1), claims 13 and 28 (air is extracted through 15 and 18, paragraph [0025], fig 1), claim 14 (air is filtered, paragraph [0028]), and claims 17 and 31 (ferrous and plastics are sorted using a magnetism sorting machine, paragraph [0030]). In addition, the features added by claims 2, 4 to 10, 15, 16, 20 to 26, 29 and 30 relate only to features which are common general knowledge in the art or relate to structures that are merely matters of design choice when the general technical knowledge about the state of the art is used. Therefore, claims 1, 2, 4 to 18 and 20 to 31 lack an inventive step in light of D2.

(continued)

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation (2) of Box V

D3: JP 2001-205245 A

Claims 1, 2, 4-6, 8, 10-12, 16-18, 20-22, 24, 26, 27, 29-31: Document D3 discloses a method and system for separating toner of used toner cartridges including:

- breaking up toner cartridges into pieces to release toner from within the cartridges (crush means 3, paragraph [0009], fig 1);
- passing the cartridge pieces over a sifting barrier so that only particles under a predetermined size pass through the barrier (separation means 4 consisting of horizontally vibrating conveyors with sieving mesh 4a, paragraph [0010], fig 1);
- agitating the pieces to mobilise the toner (centrifugal-force separation means 5 to separate toner and crushed parts, paragraph [0009]);

The citation differs from the present invention in its use of a liquid to extract the toner particles. However, it is considered that the liquid is technically equivalent to the use of air in the current invention. It would be clearly obvious to a person skilled in the art that either arrangement could be replaced by the other without materially affecting the way the invention works. Furthermore, the features added by claims 2, 4 to 6, 8, 10 to 12, 16, 17, 20 to 22, 24, 26, 27 and 29 to 31 relate only to features which are disclosed by D3, or which are common general knowledge in the art, or which relate to structures that are merely matters of design choice when the general technical knowledge about the state of the art is used. Therefore, claims 1, 2, 4 to 6, 8, 10 to 12, 16 to 18, 20 to 22, 24, 26, 27 and 29 to 31 lack an inventive step in light of D3.

Inventive Step (IS) Claims 3, 19

No individual citation or obvious combination of citations disclose an apparatus or method of extracting toner from toner cartridges including introducing ionised air adjacent the pieces, as defined in present claims 3 and 19. The closest prior art is represented by D1 in which inert gas is provided to the enclosure to prevent the risks of fire and/or explosion (column 4 lines 4-9). Hence, it would not be obvious to a person skilled in the art to provide ionised air within the casing. Therefore, claims 3 and 19 appear to be novel and involve an inventive step.